Histological Changes Induced in Sympathetic, Motor and Sensory Nerve Cells by Functional Activity. GUSTAV MANN. Journal of Anatomy and Physiology, Vol. XXIX, pp. 100-108, Pl. I.

Dr. Mann's experiments as described in the present paper deal with changes occurring in sympathetic ganglion cells of the rabbit caused by electrical stimulation of from thirty minutes to nine hours; with the retina and occipital lobes of dogs, in which one eye had been exposed to light, while the other remained covered, and with the motor areas and motor cells in the spinal cord of dogs after considerable fatigue and in the resting condition. The method yielding most definite results are methyl-blue or toluidin-bluestaining after hardening in mercuric chloride. The author's conclusions are as follows: 1. "That during rest, several chromatic materials are stored up in the nerve cell, and that these materials are used up by it during the performance of its function." 2. "That activity is accompanied by an increase in size of the cells, the nuclei and the nucleoli of sympathetic, ordinary motor and sensory ganglion cells." 3. "That fatigue of the nerve cell is accompanied by shrivelling of the nucleus and probably also of the cell, and by the formation of a diffuse chromatic material in the nucleus. As far as our author's fatigue changes are described, there is a rather close agreement with results of my own experiments. It is further quite possible that there should be an initial swelling of the cell on beginning stimulation, due, as Dr. Mann suggests, to a flow of lymph into the cell. My experiments were directed chiefly to the demonstration of extreme fatigue and do not cover this point.

The Microscopical Examination of the Human Brain. EDWIN GOODALL, M. D. London, 1894. pp. 186.

We have here presented in a clear concise manner several hundred methods for the microscopical preparation of the brain. The book is at once a compendium for ready reference to all sorts of devices of treatment and a critical statement derived from experience as to the practical value, difficulties, etc., of each method. It is English, and of course we are treated on the same page with formulae calling for drahms and ounces, and grammes and kilos. The metric system is followed in the main however. An appendix of fifty pages is devoted to museum methods.

Schema vom Faserverlauf im Rückenmark. E. VILLIGER. Basel, 1894. 19 pp. with large colored diagram.

In the preparation of the above schema Villiger has made full use of recent results of v. Lenhossék, Pierre Marie, Ramon y Cajal, Déjérine, L. Edinger, and A. Strümpell. The result is a convenient diagram, drawn in perspective, giving all the different kinds of cells, including those of the spinal ganglia with the course of their respective neurons within the cord. Each type of cell has its own color and this is continued into the neurons arising from it. The normal direction of the nerve impulse in each fibre is also indicated with the direction in which degeneration occurs after injury. The plate is almost as good as a model.

Zur Physiologie des Labyrinths, Mittheilung; Das Hören der labyrinthlosen Tauben. J. R. EWALD. Pflügers' Archiv Bd. LIX, Sn. 258-275. Bonn, 1894.

By over ten years active experience upon this line of work Prof. Ewald has arrived at a degree of skill which has made him complete master of his difficult and extremely delicate operations. The writer is personally under great obligation to Professor Ewald for a most careful and thorough demonstration of not only the operated animals but of his method of removing the membranous labyrinth. Objections have been raised (by Bernstein and Matte) against Ewald's conclusions, on

the ground that portions of the labyrinth were overlooked in the extirpation, that these parts remaining intact might continue to mediate some degree of audition. The writer is glad of an opportunity to return Prof. Ewald's great courtesy by recording the testimony that any oversight of the kind indicated is out of the question. Without the shedding of a single drop of blood to obscure the anatomy of the parts in the least the entire labyrinth was removed and writer could plainly see the empty bony capsule and at Prof. Ewald's request actually counted the five stumps of the branches of the auditory nerve as they had been torn from their end-organs. There is no possibility of any doubt as to completeness of extirpation. Passing next to the operated animals, there is certainly no more possibility for doubting that they react to certain sounds than that a normal dog reacts to a whistle. The fact that Matte's pigeons did not respond to the report of a percussion cap, and this was the only test according to Ewald that Matte had recourse to, proves little or nothing; since normal birds seldom react to a noise of this kind. The writer has often shot wild pigeons one after the other out of a tree without the remaining birds paying any attention to the report of a gun. We are thus confronted by the fact that animals, wholly deprived of auditory sense organs, are still able to react to certain sounds. Possibility of contact with anything which could vibrate, the method so well known by which the deaf are enabled to appreciate sound vibrations, was guarded against by suspending the cage from the ceiling and supporting the pigeon on a pad of cotton several centimeters thick. The sound is now conducted through a rubber tube twelve feet long from the mouth of the observer to within 10 cm. of the pigeon. The sound which Ewald generally used is a long drawn "Uh" made during inspiration. Disturbance of the air in the neighborhood of the bird would thus be exceedingly slight. In fact, quickly drawing a full inspiration through the tube never caused any response on the part of the pigeon. In his book on the eighth nerve Ewald advances the theory that the stumps of the nerves are capable of being stimulated by sound vibrations. He has now applied arsenical paste to kill the nerves but is still unable to obtain a bird which does not react to sound. For the present, therefore, the author contents himself with a statement of the facts and does not attempt to frame any theory as to the mechanism by which his birds are enabled to appreciate sound vibrations.

Zur Frage nach der Vererbung erworbener Eigenschaften. REH. Biologisches Centralblatt, XIV. Bd. (1894), s. 71-75.

The author, after referring to the views of Häckel, Darwin, Weismann, Haacke, and stating his belief that the doctrines of Häckel and his followers are not absolutely antagonistic to those of the school of Weismann, expresses his own view as follows: The question is not one of the inheritance of "operative mutilations," but of "acquired characters." This undoubtedly exists, but it presupposes a fixed *Anlage*, innate (*innewohnend*) and given by the systematic position. To have shown this, is the great merit of Weismann. A. F. C.

Untersuchungen über die Folgen der Zucht in engster Blutsverwandtschaft. DR. RITZEMA BOS. Biologisches Centralblatt, XIV. Bd. (1894), s. 75-81.

As the result of experimental breeding of the descendants of a tame albino female rat from October, 1886, to 1893, Dr. Bos concludes: 1. Continual interbreeding of close relations decreases the power of reproduction, and may even cause at last complete infertility. 2. It appears, also, after many generations to induce a

decrease of size of body. 3. It is possible, but in no way proved, that the continual interbreeding of close relations causes a greater predisposition for diseases and the occurrence of malformations.
A. F. C.

II.—ANTHROPOLOGICAL PSYCHOLOGY.

By A. F. CHAMBERLAIN, Ph. D.

Suicide among Primitive Peoples. S. R. STEINMETZ. Amer. Anthrop. (Washington), Vol. VII (1894) pp. 53-60.

It has been assumed by many authorities that insanity and suicide increase in the ratio of the civilization of the races. In this article the author of the excellent "*Ethnologische Studien zur ersten Entwickelung der Strafe*," gives us the result of his examination of the literature relating to primitive peoples in the matter of suicide. "It seems probable from the data I have been able to collect that there is a greater propensity to suicide among savage than among civilized peoples, and that its frequency may be owing to the generally more positive faith in the future life existing in the former races which enables them to meet death with greater calmness and a slighter resistance of the instinct and other natural motives tending to conservation of life, and finally the question suggests itself that if suicide is one of the positive symptoms of moral degeneration, as Dr. Winkler suggests, is it possible that moral degeneration is taking place among the primitive peoples?" The motives leading to suicide are generally the same as those active in all civilized societies, a fact which controverts the opinion of Morselli.

African Fetishism. CHATELAIN HELI. Journ. Amer. Folk-Lore. Vol. VII (1894), pp. 303-304.

This is a clear statement, in brief terms, by one who can speak with authority on the subject of African religion. The author's conclusion is worth reproducing here. "The more I ascertain and compare original facts, the more am I impressed with the fundamental unity of the religious conceptions of Chinese, Hindoos, and American Indians, as well as of nominal Moslems, Jews and Christians, with the African negro. They all have a dim notion of a supreme being; they all serve him far less than they serve the spirits, the mysterious forces of nature, and the souls of deceased persons (ancestor worship, etc.), and put their trust in amulets, talismans, incantations, quacks, priests, soothsayers, spiritits, and the thousand and one manifestations and paraphernalia of the one universal disposition of mankind known as superstition."

African Races. CHATELAIN HELI. Journ. of Amer. Folk-Lore, Vol. VII (1894), pp. 289-302.

After all the books and magazine articles on the "dark continent" this essay comes with refreshing simpleness of statement and lack of racial bias or theoretic askewness. The author, and his researches entitle his opinion to the greatest respect, holds a much higher opinion of the African negro than is wont to be entertained in psychological and anthropological circles, and he is probably right in so doing. Interesting to the psychologist is Mr. Chatelain's declaration: "The four main causes of the cultural inferiority and of the miseries of the African negro's life can be reduced to four heads namely, first, the lack of a written literature; second, the institution of polygamy; third, that of slavery; fourth, and chieftest, the belief in witchcraft. The development of the race and the happiness of the individual depend on the healing of these sores." The author evidently anticipates the adoption